

Sub
a1 } ~~What is claimed is:~~

Full
A2 }

1. A fuel injector (1) for fuel injection systems of internal combustion engines, in particular for direct injection of fuel into the combustion chamber of an engine, comprising an actuator (10), a valve needle (3) which is mechanically linked to the actuator (10) and is acted upon by a restoring spring (23) in a closing direction, to actuate a valve closing body (4), which, together with a valve seat face (6), forms a sealing seat, and comprising a sleeve (24) which pre-stresses the restoring spring (23), wherein an adjusting body (40) is mounted so as to be adjustable in the sleeve (24) so that a fuel amount flowing through the fuel injector (1) per unit of time is dependent upon the position of the adjusting body (40) in the sleeve (24).

2. The fuel injector according to Claim 1, wherein the sleeve (24) is inserted into a central recess (47) in the fuel injector (1).

3. The fuel injector according to Claim 1 or 2, wherein the restoring spring (23) is supported on an injection end (42) of the sleeve (24).

4. The fuel injector according to Claim 2, wherein the position of the adjusting body (40) is variable in the sleeve (24) via a first adjusting tool (45, 52).

5. The fuel injector according to one of Claims 1 through 4, wherein an injection end (41) of the adjusting body (40) is designed with a conical shape.

6. The fuel injector according to Claim 5, wherein the sleeve (24) has an aperture plate (43) on its injection end (42).

7. The fuel injector according to Claim 6, wherein the conical

end (41) of the adjusting body (40) projects into a borehole (46) in the aperture plate (43).

8. The fuel injector according to one of Claims 1 through 7, wherein the sleeve (24) and the adjusting body (40) each have a thread (50, 51).

9. The fuel injector according to Claim 8, wherein the position of the adjusting body (40) in the sleeve (24) is adjustable by turning it using a first adjusting tool (52).

10. The fuel injector according to one of Claims 1 through 4, wherein the adjusting body (40) is cylindrical in shape.

11. The fuel injector according to Claim 10, wherein the cylindrical adjusting body (40) has a groove (60) which extends in the axial direction in the outside wall of the adjusting body (40).

12. The fuel injector according to Claim 11, wherein the radial dimension of the groove (60) increases from the injection end (41) of the adjusting body (40) to an inlet end (53) of the adjusting body (40).

13. The fuel injector according to Claim 12, wherein the groove (60) is U-shaped.

14. The fuel injector according to Claim 12, wherein the groove (60) is C-shaped.

15. The fuel injector according to Claim 10, wherein the cylindrical adjusting body (40) has a planar area (60) which extends in the axial direction on the outside wall of the adjusting body (40).

16. The fuel injector according to Claim 4, wherein the sleeve (24) has an external thread (57) which cooperates with an

internal thread (58) of the central recess (47) in the fuel injector (1) and is adjustable by a second adjusting tool (56).

17. The fuel injector according to Claim 16, wherein the sleeve (24) has a recess (59) on the inlet side in which the first adjusting tool (45) and the second adjusting tool (56) are engaged.

18. The fuel injector according to Claim 17, wherein the recess (59) on the inlet side is designed to have two steps, the second adjusting tool (56) being insertable up to a first step (61) and the first adjusting tool (45) being insertable up to a second step (62).

19. The fuel injector according to one of Claims 1 through 18, wherein the sleeve (24) is supported on an intermediate sleeve (31).

20. The fuel injector according to Claim 19, wherein the intermediate sleeve (31) is clamped between the sleeve (24) and the restoring spring (23).

21. A method of adjusting a fuel injector (1) for fuel injection systems of internal combustion engines, in particular for direct injection of fuel into the combustion chamber of an engine, having an actuator (10), a valve needle (3) which is acted upon by a restoring spring (23) in a closing direction and is mechanically linked to an actuator (10) to actuate a valve closing body (4) which, together with a valve seat face (6), forms a sealing seat, and a sleeve (24) which pre-stresses the restoring spring (23), an adjusting body (40) being mounted so as to be adjustable in the sleeve (24), so that the fuel flow rate flowing through the fuel injector (1) per unit of time is dependent upon the position of the adjusting body (40) in the sleeve (24), comprising the following steps:

- measuring a static actual flow through the fuel injector (1);
- comparing the measured static actual flow rate with a static setpoint flow rate; and
- adjusting the adjusting body (40) in the sleeve (24) until the actual flow rate corresponds to the static setpoint flow rate.

22. The method according to Claim 21, wherein the adjusting body (40) is adjusted in the sleeve (24) by turning it using a first adjusting tool (52).

23. The method according to Claim 21, wherein the adjusting body (40) is adjusted in the sleeve (24) by pressing it in using an adjusting bolt (45).

24. The method according to one of Claims 21 through 23, wherein the adjustment of the static flow rate by the adjusting body (40) and the adjustment of a dynamic flow rate by axial displacement of the sleeve (24) are performed independently of one another.

25. The method according to Claim 24, wherein the axial displacement of the sleeve (24) is performed by turning it using a second adjusting tool (56).